

USSR/Organic Chemistry - Synthetic Organic Chemistry

E-2

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4317

subjected to sublimation ( $180\text{-}200^{\circ}$ , 1 hour), the content in IV is determined by the difference. By sublimation of the residue ( $300\text{-}320^{\circ}$ , 1.5 hours) a determination is made of the content in II. Correctness of the determination of the content of the acids by sublimation is confirmed by determination of acid value. Yields of II, III and IV depend on the conditions of the reaction. Hereinafter are listed the amount of  $\text{CrO}_3$  in grams, duration of the addition of the oxidizing agent, in minutes, duration of the reaction, in minutes, temperature internal of the reaction in  $^{\circ}\text{C}$ , and the yields of II, III and IV in %: 20, 120, 150, 40, 5.6, 5.3, 3L; 40, 60, 210, 50-60, 32.9, 6.1, 3.

Card 2/2

- 48 -

AZATYAN, V. D.  
AZATYAN, V.D.

"Synthesis of heterocyclic compounds," Part 1. Reviewed by V.D.  
Azatian. Izv. AN Arm. SSR. Ser. khim. nauk v.10 no.5:369-370  
'57. (MIRA 11:1)  
(Heterocyclic compounds)

AZATYAN, V.D.; YESAYAN, G.T.

Investigations of sulfonic acid esters. Report No.4: Synthesis  
of n-chlorophenyl esters of various aliphatic sulfonic acids.  
Izv. AN Arm. SSR. Khim. nauki 11 no.5:369-372 '58. (NIRA 12:1)

1. Institut tonkoy organicheskoy khimii AN ArmSSR.  
(Sulfonic acids)

AZATYAN, V.D.

Cyclic trimerization of phenyacetylene. Dokl. AN ARM. SSR 27  
no.1:37-39 '58. (MIRA 11:9)

I.Khimicheskiy institut AN ArmSSR. Predstavлено A.L. Mndzhoyanom.  
(Benzene) (Polymerization)

AZATYAN, V.D.

Alkylation of aromatic compounds in the presence of metals. Dokl.  
AN Arm.SSR 28 no.1:7-10 '59. (MIRA 12:7)

1. Institut organicheskov khimii AN ArmSSR. Predstavleno  
chlenom-korrespondentom AN ArmSSR V.M.Tarayan.  
(Aromatic compounds) (Alkylation)

AZATYAN, V.D.

Synthesis of ketones in the presence of metallic aluminum.  
Dokl.AN Arm.SSR 29 no.3:111-114 '59. (MIRA 13:2)

1. Institut organicheskoy khimii AN ArmSSR. Predstavлено  
академиком AN ArmSSR A.L.Mashoyanom.  
(Aluminum) (Ketones)

AZATYAN, V.D.

Scientific chemistry in Soviet Armenia. Iz ist. est. i tekh.  
1:83-98 '60. (MIRA 16:12)

AZATTAN, V. D.

Use of metallic aluminum in organic synthesis. Report No.5:  
Alkylation of phenol by monobromo alkyls. Izv. AN Arm. SSR Khim.  
nauki 13 no.2/3:181-185 '60. (MIRA 13:10)

1. Institut organicheskoy khimii AN ArmSSR.  
(Aluminum) (Alkylation) (Phenol)

AZATYAN, V.D.; YESAYAN, G.T.; GALOYAN, G.A.

Investigation in the field of sulfonic acid esters. Report No.8:  
Synthesis of p-chlorophenyl esters of some aliphatic and  
cycloaliphatic sulfonic acids. Izv. AN Arm.SSR. Khim.nauki 14  
no.1:57-62 '61. (MIRA 15:5)

1. Institut organicheskoy khimii AN Armyanskoy SSR.  
(Sulfonic acid) (Esters)

AZATYAN, V.

Brief news. Izv.AN Arm.SSR.Khim.nauki 14 no.1:81-83 '61.  
(MIRA 15:5)  
(Academy of Sciences of the Armenian S.S.R.)

AZATYAN, V.D.; GYULI-KEVKHYAN, R.S.

Synthesis and transformations of ditertiary  $\gamma$ -glycols  
of the cyclooctatriene series. Izv. AN Arm.SSR. Khim.nauki  
14 no.5:451-467 '61. (MIRA 15:1)

1. Institut organicheskoy khimii Ak Armyanskoy SSR.  
(Glycols)

AZATYAN, V. D.

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PHASE I BOOK EXPLOITATION

SOV/6195

Nauchnaya konferentsiya institutov khimii Akademiy nauk Azerbaydshanskoy, Armyanskoy i Gruzinskoy SSR. Yerevan, 1957.

Materialy nauchnoy konferentsii institutov khimii Akademiy nauk Azerbaydzhanskoy, Armyanskoy i Gruzinskoy SSR (Materials of the Scientific Conference of the Chemical Institutes of the Academies of Sciences of the Azerbaijani, Armenian, and Georgian SSR) Yerevan, Izd-vo AN Armyanskoy SSR, 1962. 396 p. 1100 copies printed.

Sponsoring Agency: Akademiya nauk Armyanskoy SSR. Institut organicheskoy khimii.

Resp. Ed.: L. Ye. Ter-Minasyan; Ed. of Publishing House: A. G. Slikuni; Tech. Ed.: G. S. Sarkisyan.

PURPOSE: This book is intended for chemists and chemical engineers, and may be useful to graduate students engaged in chemical research.

COVERAGE: The book contains the results of research in physical, inorganic, organic, and analytical chemistry, and in chemical engineering, presented at the Scientific Conference held in Yerevan, 20 through 23 November 1957. Three reports of particular interest are reviewed below. No personalities are mentioned. References accompany individual articles.

AZATYAN, V.D.; VASILIYAN, M.V.

Synthesis of diteritary acetylenic  $\gamma,\omega$ -glycols from saturated methyl ketones and of tetratomic acetylenic alcohol from diacetone alcohol in a benzene medium. Izv.AN Arm.SSR.Khim.nauki 15 no.5:493-494 '62. (MIRA 16:2)

1. Institut organicheskoy khimii AN Armyanskoy SSR.  
(Acetylene compounds)  
(Glycols) (Ketone)

AZATIAN, V.D.; VASILYAN, M.V.; YESAYAN, G.T.

Derivatives of acetylenic alcohols,  $\gamma$ -glycols, and polyhydric alcohols. Report No.1: Synthesis of sulfoethers of tertiary acetylenic  $\gamma$ -glycols and polyhydric alcohols. Izv. AN Arm.SSR. Khim. nauki. 16 no.3:257-261 '63. (MIRA 17:2)

1. Institut organicheskoy khimii AN Armyanskoy SSR.

AZATYAN, V.D.; YESAYAN, G.T.; STEPANYAN, A.A.

Suk'onic acid esters. Report No. 12: -Chloroethyl esters  
of sulfonic acids. Izv. AN Arm. SSR. Khim. nauki 16 no.5:  
461-464 '63. (MIRA 17:1)

1. Institut organicheskoy khimii AN Armyanskoy SSR.

L-3506-65 ENT(m)/EFF(s)/MWP(j)/L\_Po-4/Pr-4 RT  
ACCESSION NR: AP5007851

S/0171/64/017/006/0706/0708

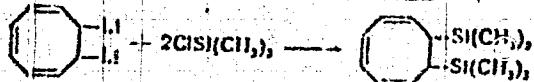
AUTHOR: Azatyan, V. D.

TITLE: Synthesis of di-(trisilyl)-cyclooctatriene

SOURCE: All ArmSSR. Izvestiya. Khimicheskiye nauki, v. 17, no. 6, 1954, 706-708

TOPIC TAGS: organic synthesis, di-(trisilyl)-cyclooctatriene, cyclic compound, silicon compound

ABSTRACT: Di-(trisilyl)-cyclotetraene was synthesized through the interaction of trimethylchlorosilane and dilithiumcyclooctatriene:



Trimethylchlorosilane in the amount of 52 g (0.6 mol based on 80% formation of dilithiumcyclooctatriene) was added at room temperature in a 45-minute period to dilithiumcyclooctatriene prepared from 31.2 g (0.3 mol) of cyclooctatetraene and 4.2 g (0.6 gram atoms) of metallic lithium in 200 ml of absolute ether in an at-

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L 48606-65

ACCESSION NR: AP5007851

mosphere of nitrogen. The reaction proceeds energetically with a spontaneous increase in the temperature of the reagent solution to 33.5°. After additional two-hour mixing the mixture was left for the night; then 75 ml of water were added with mixing. The ether layer was dehydrated over anhydrous sodium sulfate and the ether was driven off. Through evaporation of the remainder in a vacuum, 4.2 g of a mixture of cyclooctatetraene and cyclooctatrienes and two fractions of a gold-yellow colored liquid were obtained which had boiling points which differed by 8-9°. The yield of both fractions was 57.5% of the theoretical. Orig. art. has: 1 figure, 1 table, 1 equation.

ASSOCIATION: Institut organicheskoy khimii AN Arm~~SSR~~ (Institute of Organic Chemistry, AN Arm~~SSR~~)

SUBMITTED: 25Sep63

ENCL: 00

SUB CODE: GC, OC

NO REF Sov: 004

OTHER: 005

Card 2/2

MIKAYELYAN, A.I.; BAGRAMYAN, I.G.; AZATYAN, V.G.

Disorders of hemodynamics in stenosis of the atrioventricular  
orifice of the heart. Izv. AN Arm.SSR. Biol. nauki 17 no.11:  
55-62 N 1964 (MIRA 18:2)

1. Institut kardiologii i serdechnoy khirurgii AN SSSR.

Determination of the Rate Constant of the  
Reaction of Atomic Oxygen With Molecular  
Hydrogen

3/020/60/132/04/36/064  
3004/B007

are graphically to be determined. The experiments were carried out in a vacuum vessel. Fig. 1 shows the dependence of the flash point for mixtures of  $CO + O_2 + xH_2$  at different temperatures, and Fig. 2 the dependence of  $P_{pO_2}$  on  $1/P_{pH_2}$ . Herefrom it was possible to determine tan  $\alpha$  and  $b$  (Fig. 3).  
For the constant  $k_{III}$ ,  $k_{III} = 1.5 \cdot 10^{-10} \exp\left(-\frac{12,100+400}{RT}\right) \text{ cm}^3 \cdot \text{mole}^{-1} \cdot \text{sec}^{-1}$   
was found. There are 3 figures and 11 references: 6 Soviet, 1 British, and 1 German.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute  
of Chemical Physics of the Academy of Sciences, USSR)

SUBMITTED: February 9, 1960

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11.6200(also 3619)

30918  
S/195/61/002/003/003/009  
E111/E130

AUTHORS: Azatyan, V.V., Voyevodskiy, V.V., and Nalbandyan, A.B.

TITLE: Determination of the rate constant for the reaction  
of atomic oxygen with molecular hydrogen

PERIODICAL: Kinetika i kataliz, v.2, no.3, 1961, 340-349

TEXT: The reaction of atomic oxygen with molecular hydrogen to give the hydroxyl radical and atomic hydrogen often occurs in the oxidation process, sometimes playing an important part. This reaction has not been sufficiently studied and there are no reliable published data on its rate constant. The authors have used a new method for making this determination. The velocity constants were measured by observing the flame boundaries in the burning of carbon monoxide in the presence of varying small concentrations of hydrogen. A conventional type of reaction apparatus was used, but it was found that the quantities reacting could be increased by coating the walls of the reaction chamber. NaCl and KCl coatings gave a several-fold increase, but MgO gave an increase of about fifty times, and therefore all work was done with magnesia-coated chambers, since much sharper flame-edge

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Determination of the reaction ...

30918  
S/195/61/002/003/003/009  
E111/E130

Confirmation of the correctness of the approach used was obtained by independent calculations using diffusion in coefficient values. The rate-constant values for the reaction  $O + H_2 = OH + H$  was found to be  $1.11 \times 10^{-10} e$  ~ 11700/RT and for  $H + O_2 = OH + O$ ,  $1.30 \times 10^{-10} e$  ~ 15900/RT

$\text{cm}^3, \text{molecule}^{-1}, \text{sec}^{-1}$ .

L.I. Abramenko, R.V. Lorentso, V.N. Kondratyev and N.S. Yenikolopyan are mentioned for their contributions in this field. There are 8 figures, 3 tables and 30 references; 13 Soviet-bloc, 1 Russian translation from non-Soviet publication, 1 English translation from a Soviet author, and 15 non-Soviet-bloc. ✓  
The four most recent English language references read as follows:  
Ref.20: D.R. Warren, Trans. Faraday Soc., v.53, 199, 1957.  
Ref.21: D.R. Warren, Trans. Faraday Soc., v.53, 206, 1957.  
Ref.22: I.G. Greaves, J.W. Linnet, Trans. Faraday Soc., v.54, 1323, 1958.  
Ref.29: P. Gray, Trans. Faraday Soc., v.55, 408, 1959.

Card 3/4

AZATYAN, V.V.; AKOPYAN, L.A.; NALBANDYAN, A.B.

Electron paramagnetic resonance method used for detecting  
atomic hydrogen in a rarefied flame of a moist mixture of  
CO and O<sub>2</sub>. Kin. i kat. 2 no.6:940-941 N-D '61. (MIRA 14:12)

1. Institut khimicheskoy fiziki AN SSSR,  
(Hydrogen--Spectra) (Carbon monoxide)  
(Oxygen)

S/020/61/139/005/016/021  
R103/B220

AUTHORS: Gorban', N. I., Azatyan, V. V., and Nalbandyan, A. B.

TITLE: Determination of the recombination coefficient of oxygen atoms on the surface of quartz covered by potassium tetraborate

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 139, no. 5, 1961, 1141-1144

TEXT: A new method of determining the recombination coefficient of oxygen atoms is suggested, since the methods used so far (W. V. Smith, J. Chem. Phys., 11, 3, 110 (1943); J. W. Linnet, Trans. Farad. Soc., 55, 8, 1323 (1959) and others) are inadequate. The authors selected a system in which the concentration of O atoms is at least commensurable with that of H atoms, to study the effectivity ( $E_0$ ) of heterogeneous recombination of oxygen atoms by measuring the inflammation limits. In such a system, the branching process of the chains should be dependent on the reaction rate of atomic oxygen. Such a system with a well-known reaction mechanism is the low-temperature combustion of CO in the presence of small admixtures of H<sub>2</sub>. The authors present the following equation for the mechanism of this reaction in the neighborhood of the first inflammation limit:

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Determination of the recombination ...

S/020/61/139/005/016/021  
B103/B220

$$P_{O_2}^{CO} = [k_4 T / 2k_2 \cdot 10^{19}] (1 + k_5 T / k_3 \cdot 10^{19} \cdot P_{H_2}^{CO}) \quad (2)$$

If reactions (IV) and (V) proceed in the kinetic range, it follows from (2) that the dependence of  $P_{O_2}^{CO}$  on  $1/P_{H_2}^{CO}$  at constant temperature is linear. The straight line

representing this function cuts the ordinate in:  $b = k_4 T / 2k_2 \cdot 10^{19}$  (3);

Here,  $\tan\alpha = (k_4 T / 2k_2 \cdot 10^{19}) [(k_5 T / k_3 \cdot 10^{19}) k_3]$  (4) is valid. Thus, it is possible to determine  $\tan\alpha$  and  $b$  by measuring the initial inflammation limits of CO-O<sub>2</sub> mixtures (with small admixtures of H<sub>2</sub>) at various temperatures.

Based on the known value of  $k_3$ ,  $k_5$  can be determined from (4). The

coefficient ( $E_0$ ) is derived from  $k_5 = E_0 v_0 / d$  (5), where  $v_0$  is the thermal velocity of O atoms, and  $d$  is the diameter of the vessel. If  $E_0 = E_0^0 e^{-E_5/RT}$  in the temperature range studied, the equation

$$\log \tan\alpha / b T^{1.5} = \log k_5^0 / k_3^0 \cdot 10^{19} + (E_3 - E_5) / 2.3RT \quad (6)$$

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S/020/61/139/005/016/021  
B103/R220

Determination of the recombination ...

surface condition prove that (IV) and (V) take place in the kinetic range.  
Since

$k_4/2k_2 = [O_2]^{H_2}$ , where  $[O_2]^{H_2}$  is the  $O_2$  concentration at the first inflammation limit of the  $H_2-O_2$  mixture, the right side of Eq. (3) may be replaced by  $p_{O_2}^{H_2}$ . This means that the section which is cut off by the straight line

$p_2^{CO}/p_{H_2}^{CO}$  on the ordinate equals the partial pressure of oxygen at the first inflammation limit of a  $H_2-O_2$  mixture. The correctness of Eq. (1) was found graphically owing to the dependence of  $p_{O_2}^{CO}$  on  $p_2^{CO}/p_{H_2}^{CO}$  and confirmed experimentally. The value of  $E_3 - E_5$  was calculated from the slope of the straight line on the basis of (6) and is  $5.6 \pm 0.2$  kcal/mole. Since  $E_3$  is  $11.7 \pm 0.7$  kcal/mole,  $E_5 = 6.1 \pm 1.0$  kcal/mole. On the basis of (6) and (7)  $\varepsilon_0^c$  was calculated from b and  $k_3 = 1.1 \cdot 10^{-10} \text{ cm}^3/\text{molecule} \cdot \text{sec}$  and was

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Determination of the recombination ...

8/020/61/139/005/016/021  
B:03/B220

$1.65 \cdot 10^{-2} \text{ sec}^{-1}$ . Consequently,  $\mathcal{E}_0 = 1.65 \cdot 10^{-2} e^{-(6100 \pm 1000)/RT} \text{ sec}^{-1}$  in the temperature range studied.  $\mathcal{E}_H$  (recombination coefficient of H atoms on the wall of the vessel) was calculated from the graphically obtained values of  $b$  and from  $k_2$  by using an equation analogous to (5):  
$$\mathcal{E}_H = 9 \cdot 10^{-14} e^{-(5400 \pm 1000)/RT}$$
. The latter values are in good agreement with those of A. B. Nalbandyan and S. M. Shubina (ZhFKh, 20, 1249 (1946), and N. N. Semenov (O nekotorykh problemakh khimicheskoy kinetiki i reaktsionnoy sposobnosti (Some problems of chemical kinetics and reactivity), Izd. AN SSSR, 1958)). There are 3 figures and 16 references: 9 Soviet and 7 non-Soviet.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences USSR)

PRESENTED: March 30, 1961 by V. N. Kondrat'yev, Academician

SUBMITTED: March 25, 1961

Card 6/6

Detection of oxygen atoms in the ...

30031  
S/020/61/141/001/016/021  
B140/B101

up to 7% of  $H_2$ ; at a volume rate of  $82 \text{ cm}^3/\text{min}$  (linear rate  $\approx 19 \text{ m/sec}$ ), and a pressure of 5.5 mm Hg. The temperature varied between 607 and  $650^\circ\text{C}$ . Under these conditions, an epr signal of atomic O consisting of one component was determined, with a g factor of 1.5. The value of the g factor is in agreement with that published for atomic oxygen. The concentration determinations of atomic O and H were conducted simultaneously. The dependence of the concentration of atomic H and O on that of  $H_2$  contained in the  $\text{CO} - \text{O}_2$  mixture, was also determined at  $610^\circ\text{C}$ . The measured values show that the concentration of O atoms is commensurable with that of H atoms, and that the two concentrations increase as the  $H_2$  content increases. The ratio O/H decreases from 4.5 to 0.9 with an increase of the  $H_2$  content from 1.1 to 6.9 %. A temperature increase from 607 to  $650^\circ\text{C}$  at an  $H_2$  content of 3.8 % causes a concentration increase of atomic O and H from  $2.9 \cdot 10^{14}$  to  $4.1 \cdot 10^{14}$  particles/ $\text{cm}^3$ , and from  $4.6 \cdot 10^{14}$  to  $7.8 \cdot 10^{14}$  particles/ $\text{cm}^3$ , respectively. The results show that the sum of partial pressures

Card 2/3

X

AZATYAN, V.V.; AKOPYAN, L.A.; NALBANDYAN, A.B.

Detection of free hydrogen, oxygen, and deuterium atoms in rarefied flames of carbon monoxide using the electron paramagnetic resonance method. Dokl. AN Arm. SSR 35 no.3:123-128 '62. (MIRA 16:6)

1. Institut khimicheskoy fiziki AN SSSR. 2. Chlen-korrespondent AN Armyanskoy SSR (for Nalbandyan).

(Carbon monoxide)  
(Paramagnetic resonance and relaxation)

AZATYAN, V.V.; NALBANDYAN, A.B.; TSUY MEN-YUAN' [TS'ui Meng-yüan]

Determination of the rate constant of the reaction between  
atomic oxygen and ethane. Dokl. AN SSSR 147 no.2:361-364  
N '62. (MIRA 15:11)

1. Institut khimicheskoy fiziki AN SSSR. Predstavлено  
академиком V.N. Kondrat'yevym.  
(Oxygen) (Ethane)  
(Chemical reaction, Rate of)

VOLOKHONOVICH, I.Ye.; MARKEVICH, A.M.; MAS'EROVYI, I.F.; AZATYAN, V.Y.

Nonisothermal processes. Thermal cracking of methane. Dokl.  
AN SSSR 146 no.2:387-390 S '62.  
(MIRA 15:9)

1. Institut khimicheskoy fiziki AN SSSR. Predstavлено akademikom  
N.N. Semenovym.  
(Methane) (Cracking process)

L 12867-63

EPA/EPR/FCS(f)/EWP(j)/EPP(c)/EWT(m)/BDS/ES(s)-2 AEDC/AFFTC/  
RPL/SSD/APGC Pap-4/Ps-4/Pc-4/Pr-4/Pt-4 RM/BW/WW/JW  
ACCESSION NR: AP3002633

S/0171/63/016/003/0201/0203 89

AUTHOR: Azatyan, V. V.; Gershenson, Yu. M.; Nalbandyan, A. V.; Ts'ui-Men-Yuan.TITLE: Discovery of free hydrogen & oxygen atoms in vacuum-flaming of mixtures of carbon monoxide & oxygen in the presence of small additions of ethyleneSOURCE: AN ArmSSR. Izv. Khimicheskiye nauki, v. 16, no. 3, 1963, 201-203TOPIC TAGS: free O atom, free H atom, ethylene, self-combustionABSTRACT: To verify the mechanism of CO combustion in the presence of ethylene, the concentration of free O and H atoms was determined by electron paramagnetic resonance measurement. Ethylene accelerates CO combustion and lowers the limit of self combustion; the ethylene concentration at which C content is maximum is also the concentration at which the lower self-combustion limit is minimum - about 0.2%. O and H concentrations increase with ethylene increase (to about 2.5 and 0.4%, respectively), then decrease. Increase in temperature increases O content faster than H concentration. Orig. art. has: 1 figure and 8 formulas.ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics,  
AN SSSR)

Card 1/2

MARKEVICI, A.M. [Markevich, A.M.]; AZATIAN, V.V. [Azatyan, V.V.]; SOKOLOVA, N.A.

Adiabatic compression as a research method of the chemical process  
in nonstationary conditions. Analele chimie 18 no.2:105-113 Ap-Je  
'63.

|             |   |                                       |
|-------------|---|---------------------------------------|
|             |   | S/252/63/036/001/001/002<br>D403/D307 |
| AUTHORS:    | Azatyan, V.V., Nalbandyan, A.B., Corresponding Member of the AS of the Armenian SSR, and Ts'ui Meng-Yien  |                                       |
| TITLE:      | Determination of the velocity constants of the reaction of atomic oxygen with propane and n-butane  |                                       |
| PERIODICAL: | Akademiya nauk Armyanskoy SSR. Doklady, v. 36, no. 1, 1963, 23-29   |                                       |
| TEXT:       | The method developed earlier for the determination of rate constants in reactions between atomic oxygen and hydrogen-containing compounds, consisting essentially of measuring the lower limit of combustion of CO in oxygen in the presence of the hydrogen donor, was applied to the reactions $O + C_3H_8 \xrightarrow{K_3} OH + C_3H_7$ and $O + n-C_4H_{10} \xrightarrow{K_4} OH + n-C_4H_9$ . The probable mechanism is discussed.<br>It was found that |                                       |
|             | Card 1/2  |                                       |

|  |   |                                       |
|--|---|---------------------------------------|
|  |   |                                       |
| Determination of the velocity ...  |   | S/252/63/036/001/001/002<br>D403/D307 |
| $K_3^I = (1.85 \pm 0.60) \times 10^{-10} \cdot \exp \left( -\frac{6200 \pm 500}{RT} \right)$<br>and  |   |                                       |
| $K_3^{II} = (1.3 \pm 0.4) \times 10^{-10} \cdot \exp \left( -\frac{4200 \pm 500}{RT} \right)$<br>$\text{cm}^3 \text{ molecule}^{-1} \text{ sec}^{-1}$ , between 590 and 650°C, the respective activation energies being $6.2 \pm 0.5$ and $4.2 \pm 0.5 \text{ kcal}$ . The results for butane were in good agreement with literature data. There are 4 figures and 3 tables. |   |                                       |
| ASSOCIATION:   | Institut khimicheskoy fiziki Akademii nauk SSSR<br>(Institute of Chemical Physics of the Academy of Sciences of the USSR) |                                       |
| SUBMITTED:   | October 11, 1962  |                                       |
| Card 2/2   |   |                                       |

I 16987-63  
RM/WW/JD/JFW

FCS(f)/EWP(j)/EPP(c)/EWP(q)/EVT(m)/BDS AFFTC/ASD  
S/020/63/149/005/011/018 Pg-4/Pr-4

AUTHOR: Azatyan, V. V., Nalbandyan, A. B., and Ts'ui Meng-Yuan

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71

TITLE: Determination of reaction rate constants when atomic hydrogen and oxygen react with ethylene

27

PERIODICAL: Akademicheskaya nauk SSSR. Doklady, v. 149, no. 5, 1963, 1095-1098

TEXT: The authors investigate the reaction rate constants for reactions of atomic hydrogen and oxygen with ethylene in the temperature range 570-600°C on the basis of measurements of the initial limits of spontaneous ignition of hydrogen-oxygen mixtures and mixtures of carbon monoxide with oxygen in the presence of small amounts of ethylene. They determine at  $E_0 \approx 7,200$  cal. the activation energy of the reaction of atomic hydrogen with ethylene, finding it to differ considerably from the corresponding values obtained at lower temperatures. Evidently, at high temperatures the mechanism of interaction changes. For while at low temperatures the predominating reaction is that of the combination of atomic hydrogen with ethylene, at low temperatures the predominating reaction is that leading to the formation of vinyl radical and molecular hydrogen. The activation energy at low temperatures for the reaction of atomic oxygen with ethylene also is much lower than that obtained by the authors. There are 3 figures.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Physical Chemistry, Academy of Science, USSR)

Card 1/2

AZATYAN, V.V.; GERSHENZON, Yu.M.; NALBANDYAN, A.B.; STUY-MEN-YUAN'

Detection of free hydrogen and oxygen atoms in a rarefied flame of carbon monoxide and oxygen mixtures in the presence of small amounts of ethylene additions. Izv. AN Arm.SSR. Khim.nauki. 16 no.3:201-203 '63.  
(MIRA 17:5)

1. Institut khimicheskoy fiziki AN SSSR.

AZATYAN, V.V.; NALBANDYAN, A.B.; ~~TS'UJY MEN-YUAN~~ [TS'ui Mēng-yüan]

Determination of the rate constants of the reactions of atomic oxygen with propane and n-butane. Dokl. AN Arm. SSR 36 no.1:  
23-29 '63.  
(MIRA 17:1)

1. Institut khimicheskoy fiziki AN SSSR. 2. Chlen-korrespondent  
AN Armyanskoy SSR (for Nalbandyan).

AZATYAN, V.V.; NALBANDYAN, A.B.; TSUY MEN-YUAN' [TS'ui Meng-yuan]

Determination of the rate constant of the reaction of atomic oxygen with methane. Klin. i kat. 5 no.2:201-210 Mr-Ap '64.

(MIRA 17:8)

1. Institut khimicheskoy fiziki AN SSSR.

1. 23242-65 EPF(o)/SMP(j)/ENT(m) PC-4/Pr-4 RFL RM/WW/JFW  
ACCESSION NR: APL030383 S/0171/64/017/002/0117/0121

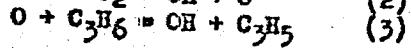
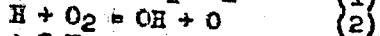
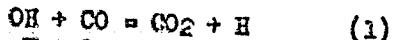
AUTHOR: Azatyan, V. V.; Halbandyan, A. B.; Silakhtaryan, N. T.

TITLE: Investigation of the reaction of atomic oxygen and hydrogen with propylene B

SOURCE: AN ArmeSSR. Izvestiya. Khimicheskiye nauki, v. 17, no. 2, 1964, 117-121

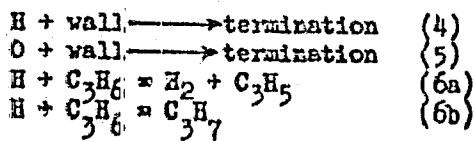
TOPIC TAGS: oxygen propylene reaction, hydrogen propylene reaction, reaction rate, rate constant, radical formation, combustion limit method, combustion mechanism

ABSTRACT: Reactions of atomic oxygen and hydrogen with propylene were investigated by the combustion limits method. The following equations represent the mechanism of CO combustion at low pressures in the presence of propylene:

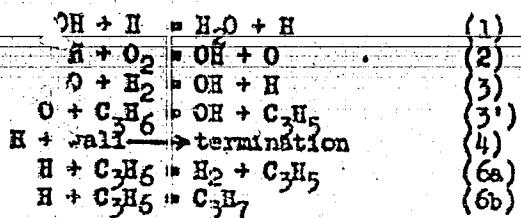


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 ACCESSION NR: AP4030383



The following group of equations represents the hydrogen combustion mechanism:



On increasing the amount of propylene in the  $\text{CO}_2 + \text{O}_2$  mixture the ignition limit is reduced, indicating reactions 3' and 1. With a further increase in propylene the limit is raised, showing reaction of hydrogen with propylene to form less active radicals (reactions 6a and 6b). The pressure ( $P$ ) of the gas mixture for

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L 23942-65  
ACCESSION NR: AP4030383

the combustion of hydrogen at the lower ignition limit is shown by the equation:

$$P_{p_{O_2}} = \left| \frac{(K_g^0)^{H_2} \cdot T^{2.5}}{10^3 \cdot 2K_1} + \frac{K_{g_2} + K_{g_3}}{2K_1} P_{CO} \right| \frac{K_1^2 (RH) + K_2 (H_2)}{K_1^2 (RH) + 2K_1^2 (H_2)}$$

where  $K_1$  are the rate constants for the respective reactions, and  $H_2$  and  $PC_3H_6$  are the partial pressures of  $O_2$  and propylene. The equation for the lower ignition limit during the combustion of CO in the presence of propylene:

$$\frac{P_{CO} p_{O_2}^{CO}}{1 + \beta} = \frac{(K_g^0)^{CO} \cdot T^{2.5}}{10^3 K_3} \left[ 1 + \frac{(K_g^0)^{CO} \cdot T^{2.5}}{10^3 P_{CO} p_{CO}^{CO} / K_3} \right]$$

where

$$\beta = \frac{K_1 p_{CO}^{CO} \cdot 10^3}{(K_g^0)^{CO} \cdot T^{2.5}}, \quad K_3 = K_{g_2} + K_{g_3}$$

The rate constants for equations 3' and 6 for propylene at 640° were:

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L 23042-65

ACCESSION NR: AP4030383

$K'3 = 1.2 \times 10^{-11}$ ,  $K_6 \approx 4.8 \times 10^{-13} \text{ cm}^3 \text{ molec}^{-1} \text{ sec}^{-1}$ . The reaction rates of oxygen and of hydrogen with propylene are faster than with ethylene. Orig. art. has: 3 figures and 14 equations.

ASSOCIATION: Institut khimicheskoy fiziki, AN SSSR (Institute of Chemical Physics, AN SSSR)

SUBMITTED: 03 Sep 63

ENCL: 00

SUB CODE: FP

NO REP SOY: 006

DATER: 002

Card 4/4

AZATYAN, V.V.; NALBANDYAN, A.B., akademik; OGANESEAN, K.T.

Reaction between oxygen atoms and methyl alcohol. Dokl. AN  
SSSR 157 no.4:930-933 Ag '64 (MIRA 17:8)

1. Institut khimicheskoy fiziki AN SSSR. 2. AN ArmSSR (for  
Nalbandyan).

L 21415-65 EWT(m)/IPF(c)/EWP(j) PC-4/Px-4 RIL MM/JFW/RM  
ACCESSION NR: AP1045104 S/0010/64/158/C01/0179/0181

AUTHOR: Azatyan, V. V.; Nalbandyan, A. B. (Academician AN ArmSSR);  
Sarkisyan, E. N.

TITLE: Discovery of atomic oxygen in the cold flame oxidation of carbon disulfide by molecular oxygen

SOURCE: AN SSSR. Doklady\*, v. 158, no. 1, 1964, 179-181

TOPIC TAGS: carbon disulfide, atomic oxygen, cold flame oxidation, atomic oxygen formation, low temperature combustion, EPR spectra

ABSTRACT: The low temperature combustion reaction of carbon disulfide with molecular oxygen was subjected to EPR studies to determine the formation of atomic oxygen and the dependence of its concentration on reaction conditions. In reactions run with  $\alpha = 0.8-14$  ( $\alpha = [O_2]/[CS_2]$ ) at 209-271°C under 5-6 mm Hg pressure, the EPR signal for atomic oxygen appeared at  $\alpha \geq 2.5$ . In reactions at ~370°C, no atomic oxygen was formed at  $\alpha < 2.2$ ; atomic oxygen formation started at  $\alpha = 2.2 - 2.5$  and its concentration increased with increase in  $\alpha$  to a maxi-

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L 21415-65  
ACCESSION NR: AP4045104

mum in the  $\alpha = 0$ -6 range, and then decreased. When molecular hydrogen was added to the  $CS_2 + O_2$  mixture, the EPR signals for atomic oxygen, atomic hydrogen and hydroxyl radicals were identified:  $O + H_2 \rightarrow H + OH$ . Addition of 5% (on molecular oxygen concentration) of molecular hydrogen reduced atomic oxygen concentration 3 times. The concentration of CS radicals was the reverse of the atomic oxygen concentration: [CS] increased as  $\alpha$  decreased below 2.5, and CS disappeared at  $\alpha \approx 2.5$  as  $[O]$  increased. Orig. art. has: 3 figures

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences SSSR)

SUBMITTED: 06 Apr 64

ENCL: 00

SUB CODE: GC

NR REF Sov: 006

OTHER: 017

Cord 2/2

|  |  |   |
|--|--|---|
| L 27959-66   | IMP(j)/EMI(m)/ETC(n)-6/T   | RM/WW                                     |
| ACC NR:  | AP6013384  | SOURCE CODE: UR/0195/66/007/002/0362/0363 |
| AUTHOR:  | Sarkisyan, E. N.; Azatyan, V. V.   | 64<br>B                                   |
| ORG:   | Institute of Chemical Physics AN SSSR (Institut khimicheskoy fiziki AN SSSR) |   |
| TITLE:   | A new reaction vessel design for the EPR study of gas-phase reactions        |   |
| SOURCE:  | Kinetika i kataliz, v. 7, no. 2, 1966, 362-363                               |   |
| TOPIC TAGS:  | combustion, flame study, electron paramagnetic resonance, propulsion         |   |
| ABSTRACT: A new type of reaction vessel is proposed for the study of rarefied flames by the electron paramagnetic resonance method. The application of this vessel type makes it possible to lower substantially the flame pressure, and thus improve the resolution of the spectral lines. A special heating system for the vessel enables the flame to be located in the resonator zone of the spectrometer during measurements of EPR signals determined by magnetic as well as electrical-dipole transitions. Experiments were conducted with mixtures of carbon disulfide and oxygen containing small amounts (up to 10%) of hydrogen. When the upper part of the vessel was heated to 400°C, it was possible to maintain a flame at 0.3—0.4 mm, instead of 2—3 mm. |  |   |
| Card   | 1/2  | UDC: 542.2:662.611                        |

L 22959-66

ACC NR: AP6013384

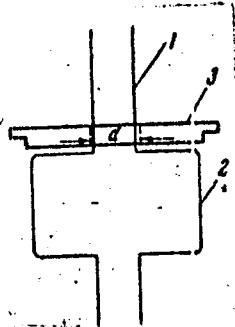


Fig. 1. Reaction vessel with the upper resonator cover

1 — narrow, heated section;  
2 — wide section located in the resonator; 3 - upper cover

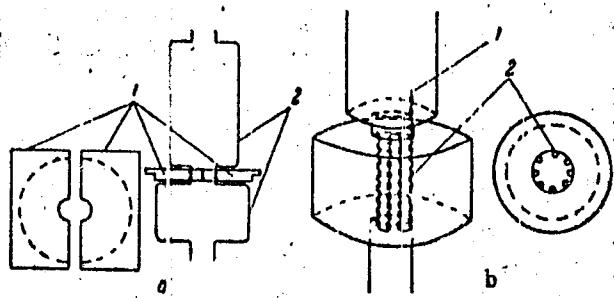


Fig. 2. a — upper cover assembly (1) and reaction vessel (2) with a wide upper section;  
b — with heating in the wide section:  
1 — platinum wire; 2 — capillaries

When the platinum wire heater was activated, the flame entered the resonator cavity, increasing the signal strength by a factor of 2—3. Orig. art. has: 2 figures. [VS]

SUB CODE: 21/ SUBM DATE: 23Aug65/ ORIG REF: 004/ OTH REF: 002/ ATD PRESS:

4238

Card 2/2 *[Signature]*

ACC NR: AP6011688

SOURCE CODE: UR/0063/66/011/002/0162/0168

AUTHOR: Azatyan, V. V. (Candidate of chemical sciences); Nalbandyan, A. B. (Academician  
AN ArmSSR)

ORG: none

TITLE: Determination of the rate constants of elementary reactions by the flammability  
limit method

SOURCE: Vsesoyuznoye khimicheskoye obshchestvo. Zhurnal, v. 11, no. 2, 1966, 162-168

TOPIC TAGS: chemical reaction, reaction rate, reaction mechanism, flammability limit

ABSTRACT: In this article the authors survey and discuss various methods of determining  
the rate constants of elementary reactions. Using the method of flammability limits, the  
authors state that at the flammability limit the differential equations describing the change  
of concentrations of the reaction components can be reduced to algebraic equations describ-  
ing the boundaries of the region of chain combustion. By the simultaneous solution of these  
equations with the use of the values of the limiting concentrations of the starting substances  
it is proposed to determine the rate constants of the reactions participating in the competition.

Card 1/2

UDC: 541.036

L 34042-66 EWT(m)/EXP(j)/T WW/JW/JWD/WE/IM

ACC NR: AP6019532

SOURCE CODE: UR/0020/66/168/004/0851/0853

AUTHOR: Gershenson, Yu. M.; Glebova, O. N.; Azatyan, V. V.; Balakhnin, V. P.; Nalbandyan, A. B. (Academician AN ArmSSR)

3/  
B

ORG: Institute of Chemical Physics, Academy of Sciences SSSR (Institut khimicheskoy fiziki Akademii nauk SSSR)

TITLE: Detection of the OH radical<sup>1</sup> by the EPR method in the rarefied flame of carbon monoxide in the presence of small amounts of hydrogen

SOURCE: AN SSSR. Doklady, v. 168, no. 4, 1966, 851-853

TOPIC TAGS: carbon monoxide combustion, carbon monoxide flame, hydrogen donor, hydroxyl radical, EPR method

3  
||

ABSTRACT: The basic processes of the propagation and branching of combustion of CO in the presence of a small amount of H<sub>2</sub> are the following:



Card 1/4

UDC: 543.422

L 34042-66

ACC NR: AP6019532

For small amounts of H<sub>2</sub>, reaction (III) is rate determining. Earlier, the EPR method was applied to detect noticeable concentrations of oxygen and hydrogen atoms in the rarified CO flame in the presence of hydrogen donors such as H<sub>2</sub>, CH<sub>4</sub>, C<sub>2</sub>H<sub>4</sub>, H<sub>2</sub>O, etc. For direct detection and determination of all three active species, i.e., hydrogen and oxygen atoms and the OH radical, the absorption cell was specially made to fit completely into the space in the resonator and was placed in close proximity to the reaction furnace. Measurement of the absolute concentrations of OH radicals was made with respect to molecular oxygen according to the formula:

$$N_{OH} = N_O \cdot \frac{Q_{OH}}{Q_O} f_+ l_+$$

where N is the concentration; Q is the numerical coefficient varying with the absorption bands, e.g., ranging from 40 to 200 for oxygen; and f<sub>+</sub> and l<sub>+</sub> are the space factors for the magnetic and the electric fields, respectively. The results of the measurements are given in the form of two graphs which indicate the dependence of the concentrations of active centers on the time of contact and the amount of added H<sub>2</sub>.

Card 2/4

L 34042-66

ACC NR: AP6019532

determining step. The OH concentration is the smallest because the rate constant  
of reaction (I) is the largest. Orig. art. has: 2 figures. [BN]

SUB CODE: 21, 07 SUBM DATE: 30Aug65/ ORIG REF: 009/ OTH REF: 008/  
ATD PRESS: 5014

Card 4/4

USSR / Human and Animal Morphology, Normal and Patho- S-4  
logic -- Cardiovascular System

Abs Jour: Ref Zhur-Biol., No 13, 1956, 59859

Author : Dzhagaryan, A. D. and Azayev, P. N.

Inst : Not given

Title : Experimental Model of Coarctation of the Aorta  
with Botallo's Duct Open

Orig Pub: Eksperim. khirurgiya, 1956, No 6, 13-16

Abstract: The thoracic cavity was opened in 12 dogs and the aorta transected at the aortic isthmus. The ends of the aorta were then connected with a tube, which had a branch tube connecting with the pulmonary artery. For coarctation of the aorta above the orifice of Botallo's duct, the constricted portion

Card 1/2

ALIYEV, G.A.; AZAYEV, S.S.

Some features of peat-type soils of the Alpine zone.  
Dokl. AN Azerb. SSR 5 no.5:407-410 '59. (MIRA 12:8)  
(Shakhdag Mountain--Peat soils)

ACCESSION NR.: AR4023763

U/0274/64/000/001/A058/A068

SOURCE: Rzh. Radiotekhnika i elektronika, Abs. 1A438

AUTHOR: Azazyan, A. A.

TITLE: New method of constructing a pulse generator with delayed feedback

CITED SOURCE: Tr. In-ta kibernetiki. AN GruzSSR, v. 1, 1963, 137-141

TOPIC TAGS: pulse generator, nanosecond pulse generator, delayed feedback generator, delay line, multiple reflections in line

TRANSLATION: A new method is described for constructing a nanosecond pulse delayed-feedback generator differing in the fact that the delay line employed is a line segment shorted on one end. In addition to delayed feedback, there direct positive feedback is unavoidably realized in the generator and contributes to the formation of steep

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ACCESSION NR: AR4023763

pulses. The pulse travels along the line four times each period and reverses polarity twice when it is reflected from the short-circuited end. The effective utilization of the reflections of the pulse in the line makes it possible to reduce the delay-line length to one-quarter. Bibliography, 4 titles. (From the author's summary).

DATE ACQ: 03Mar64 SUB CODE: GE, SD ENCL: 00

Card 2/2

AZBEKEV, V. N.

PA 59/49T40

USSR/Medicine - Literature  
Medicine - Food Poisoning

Mar 49

"Review of Book, 'Problems of the Etiopathogenesis of Food Poisonings and the Pathogenic Significance of Bacteria of the Colonic Group,' Edited by Professor R. A. Babayev, Corresponding Member, Academy of Medical Sciences USSR, and Professor I. N. Kiselevich," T. F. A. Albelev, 142 pp

"Gle 1 San" No 3

A number of chapters of this 108-page collection discuss pathogenic significance of intestinal bacilli. Points out certain shortcomings. Sections include "Toxic Effects of Foods Contaminated by Intestinal

59/49T40

USSR/Medicine - Literature (Contd) Mar 49

Type B. Coli Mutable," and "The Characteristics and Peculiarities of Food Poisoning During the Siege of Leningrad." Considers the collection an intensive and very productive work based on the activity of the Leningrad Hygiene and Sanitation Inst.

59/49T40

AZBEL', A.G.; BURLOVA, L.Ya.; LEBEDEVA, A.F.

Some palliative measures to reduce the harmful effect of  
the vibration of blanking and stamping hammer-dies on workers'  
bodies. Trudy LSGMI 75:125-131 '63. (MIRA 17:4)

1. Kafedra gigiyeny truda s klinikoy professional'nykh  
zabolevaniy (zav. kafedroy - prof. Ye.TS. Andreyeva -  
Galanina) Leningradskogo sanitarno-gigiyenicheskogo me-  
ditsinskogo instituta.

BYKOVA, N.K.; AZBEL', A.Ya.

Stratigraphic correlation of Maikop sediments in the Buzachi Peninsula based on foraminifers. Trudy VNIGRI no.190:375-397 '62. (MIRA 16:1)

(Buzachi Peninsula—Geology, Stratigraphic)  
(Buzachi Peninsula—Foraminifera, Fossil)

*Azbel', B.*

AZBEL', B.; LITVISHKO, V.L.

For speeding up housing construction. Sots.trud no.11:101-107  
N '57. (MIRA 10:12)

1. Nachal'nik sektora organizatsii truda TSentral'nogo normativno-  
issledovatel'skogo byuro Glavmosstroya (for Azbel'). 2. Nachal'nik  
Rostovskogo oblastnogo upravleniya stroymaterialov pri oblispolkome  
(for Litvishko).

(Construction industry)

AZBEL, B., inzh.; TUTOV, P., inzh.

General construction brigades should work in three shifts. Na stroi.  
Mosk. 1 no.4:24-26 Ap '58. (MIRA 11:9)  
(Moscow--Building)

SHAMSHANOVICH, I., inzh.; AZBEL', B., inzh.

New system of wages for workers engaged in installing the electric  
wiring. Na stroi. Mosk. 1 no.8:20-21 Ag '58. (MIRA 11:10)  
(Wages)

KAZAKIN, V., inzh.; AZBEL', B., inzh.

Pay wages to tower crane operators according to a piece-rate system. Na stroy. Mosk. 1 no.9:22-23 S '58. (MIRA 11:12)  
(Wages)

AZBEL', B., inzh.; DIKMAN, D.

General construction brigades and construction with bricks taken directly from trucks. Zhil. stroi. no.5:21-23 '59.

(MIRA 12:8)

1.TSentral'noye nauchno-issledovatel'skoye byuro Mosstroy (for Azbel').  
2.Starshiy proizvoditel' rabot stroitel'nogo uchastka No.6 tresta  
Mosstroy No.1 (for Dikman).

(Building, Brick)

AZBEL', Boris Moiseyevich, inzh.; ROGAL'SKIY, Boris Izrailevich, inzh.;  
SHAKHOVA, L.I., red.; PEREDERIY, S.P., tekhn. red.

[Training assemblers and masons in advanced work methods] Obuchenie  
montazhnikov i kamenshchikov peredovym metodam truda. Moskva, Vses.  
uchebno-pedagog. izd-vo Proftekhizdat, 1961. 141 p. (MIRA 14:10)  
(Building)

AZBEL', B.M.

[Advanced forms of organization of work in construction] Pere-  
dovye formy organizatsii truda v stroitel'stve. Moskva, Gos-  
stroizdat, 1961. 31 p.  
(Construction industry---Production methods)

AZBEL', B.M.; MINDLIN, B.B.; FEDOTYCHEVA, O.S.; BERSHIDS KIY, A.Kh.,  
kand. tekhn. nauk; SMIRNOV, B.K., kand. tekhn. nauk; PETROVA,  
V.V., red. izd-va; NAUMOVA, G.D., tekhn. red.

[Recommendations on the development and utilization of standard calculations for piecework assignments in construction of apartment houses according to standard plans] Rekomendatsii po razrabotke i primenenii tipovykh kal'kuliatsii dlia akkordnykh nariadov pri stroitel'stve zhilykh zdaniy po tipovym proektam. Moscow, Gosstroizdat, 1962. 129 p. (MIRA 15:12)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut ekonomiki stroitel'stva. TSentral'noye normativno-issledovatel'skoye byuro. 2. TSentral'noye normativno-issledovatel'skoye byuro Instituta ekonomiki stroitel'stva Akademii stroitel'stva i arkhitektury SSSR (for Azbel', Mindlin, Fedotycheva). 3. Nauchno-issledovatel'skiy institut ekonomiki stroitel'stva (Bershidskiy, Smirnov).  
(Piecework) (Apartment houses)

NOVIK, M.G. (Novosibirsk, Akademicheskaya ul., d.2-b, kv.2); FEOFILOV, G.L.;  
SHERDJAKOVA, L.F.; AZBEL', D.I.

Clinical aspects of anesthesia in bronchial examinations. Vest. khir.  
92 no.3:116-121 Mr '64. (MIRA 17:12)

1. Iz anesteziologicheskogo otdeleniya (zav. - Ye.I.Stadnikova),  
legocheskogo otdeleniya (zav. - dotsent M.I.Pereleman) i laboratorii  
klinicheskoy fiziologii (zav. - T.S.Vinogradova) Instituta eksperi-  
mental'noy biologii i meditsiny (dir. - prof. Ye.N.Meshalkin)  
Sibir'skogo otdeleniya AN SSSR.

SHCHEPETIL'NTOV, M.I., kand. tekhn. nauk; AZBEL', D.I., insh.

Calculation of the effectiveness of the improvement of heat networks.  
Elek. sta 36 no.6:41-44 Je '65.  
(MIRA 18:7)

82775

SOV/184-59-5-2/17

5.1100

AUTHOR: Azbel', D.S., Engineer

TITLE: The Mechanism of Entrainment of Liquids in Columns Under Conditions of Frothing

PERIODICAL: Khimicheskoye mashinostroeniye, 1959, Nr. 5, pp. 4-6 (USSR)

ABSTRACT: The mechanism of the entrainment of liquids in rectification and absorption columns is discussed. The work of V.G. Gleym (Ref. 1) and other authors in this field is mentioned. The attempts of explaining the entrainment in industrial equipment by the so called "bubbling conditions" are not suitable, since the latter are not characteristic of plate-type columns. Research carried out by the Kafedra protsessov i apparatov MIKhMa (Department of Processes and Apparatuses of MIKhM) shows that the even work of a sieve plate coincides with the beginning of frothing and that the most effective work is characterized by a wash-out of the upper froth border. The author discusses the mechanism of entrainment in detail. A bubble oscillates after arriving at the liquid surface which results in volume oscillations of the gas inside the bubble. For simplification it is assumed that the gas oscillates within a solid, spherical shell. The theory of such oscillations has been developed by

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82775

SOV/184-59-5-2/17

The Mechanism of Entrainment of Liquids in Columns Under Conditions of Frothing

Rayleigh (Ref. 2). The liquid flowing off forms a slightly curved liquid membrane in the upper part of the bubble cupola. The radius  $r$  of this membrane is equal to or smaller than the radius of the bubble  $R$ . This membrane will oscillate in any case under the influence of the volume oscillations of the gas in the bubble. If the natural frequency of the membrane coincides with the frequency of volume oscillations of the gas, a resonance phenomenon results, and the membrane collapses, producing the micronic component of entrainment (Ref. 7 and 9). The lowest frequency of the volume oscillations of the gas is  $\omega_0 \approx 4,4 \frac{C_o}{R}$ . The free oscillations of a plane membrane fixed at the circumference are

$$\Omega_1 = \frac{2,4}{r_0} \sqrt{\frac{\sigma}{\delta}}$$

where  $C_o$  - velocity of sound;  $r_0$  - radius of the membrane;  $\sigma$  - surface tension;  $\delta \cdot \rho_l \cdot h$  - surface density;  $\rho_l$  - density of the liquid;  $h$  - thickness of membrane. The resonance and consequently the destruction of the film occurs at  $\omega = \Omega$ . The total volume of the entrained liquid is determined from the volume of the film of one bubble at the moment of destruction

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82775

SOV/184-59-5-2/17

The Mechanism of Entrainment of Liquids in Columns Under Conditions of Frothing

$$V_f \approx \pi r_o^2 h \approx \pi \left(\frac{2,4}{4,4}\right)^2 \frac{\sigma}{\rho_l C_o^3} R^2 \quad (1)$$

and the average number of bubbles bursting in a second,

$$V = \frac{WF}{4/3 \pi R^3} \quad (2)$$

where  $F$  - free cross-section of the column,  $W$  - velocity of gas in cm/sec. The total volume of the entrainment is  $Q = V_f V$  (3) or after substituting the value from equations (1) and (2)

$$Q = \pi \left(\frac{2,4}{4,4}\right)^2 \frac{\sigma}{\rho_l C_o^3} R^2 \frac{WF}{4/3 \pi R^3} = K \frac{V_2}{R} \quad (4)$$

where  $K = 0,297$

$$V = \frac{WF}{\rho_l C_o^3}$$

The equation (4) applied to the conditions of frothing gives for the entrainment  $Q \approx 0,297 \frac{\sigma}{\rho_l C_o^3} V$ .

Card 3/4

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SOV/184-59-5-2/17

The Mechanism of Entrainment of Liquids in Columns Under Conditions of Frothing

Observations show that the radius of bubbles reaches under conditions of frothing approximately 1 cm. Thus the entrainment is insignificant (it consists of micronic drops) and can be neglected. Also larger drops originating in the depth of the fluid break through the froth. However, only few drops penetrate through the froth barrier into the free, inter-plate spaces. The larger drops loose a good deal of their kinetic energy. It was found that the larger drops do not rise higher than 5-7 cm above the upper froth boundary and do not reach the next plate. There are 1 diagram and 9 references: 3 Soviet, 1 German and 5 English.

[ABSTRACTER'S NOTE: Subscripts l (liquid) and f (film) are translations of the original *Ж* (zhidkost') and *п* (plenka)]

JK

Card 4/4

AZBEL', D.S.

Modeling of the processes of liquid-phase oxidation of carbohydrates.  
Khim. prom. 40 no.9:689-693 S '64.  
(MIRA 17:11)

AZB.L', D.S.,iash.

Investigation of the entrainment process in sieve-plate columns.  
Khim.mash. no.6:14-21 N-D '60.  
(Plate towers) (MIRA 13:11)

AZBEL', D. S.

Cand Tech Sci - (diss) "Study of the wearing away process in columns with screen plates." Moscow, 1961. 4 pp of diagrams; (Ministry of Higher and Secondary Specialist Education RSFSR, Moscow Order of Lenin Chemical Technology Inst imeni D. I. Mendeleyev); 150 copies; price not given; (KL, 6-61 sup, 212)

PLANOVSKIY, Aleksandr Nikoleyevich; GUREVICH, Daniil Abramovich; MASANOV,  
N.I., retsenzent; ROMANKOV, P.G., doktor tekhn. nauk, prof., re-  
tsenzent; PAVLUSHENKO, I.S., kand. khim. nauk, dots., retsenzent;  
PASSET', B.V., kand. khim. nauk, retsenzent; AZBEL', D.S., red.;  
SHPAK, Ye.G., tekhn. red.

[Apparatus for the industry of organic intermediate products and  
dyes] Apparatura promyshlennosti organicheskikh poluproduktov i  
krasitelei. Moskva, Goskhimizdat, 1961. 504 p. (MIR 15:6)  
(Dyes and dyeing—Apparatus)  
(Chemical apparatus)

AZBEL', D.S.

Hydrodynamics of bubbling. Khim.prom. no.11:854-857  
N '62. (MIRA 16:2)  
(Fluid dynamics)  
(Plate towers) (Bubbles)

L 52333-65 EWP(m)/EPF(n)-2/EWT(l)/EWA(d) R-1/Pn-1 W  
ACCESSION NR: AP:015650 UR/0061/00/007/0513/0527

AUTHOR: Abel', D. S.

TITLE: Hydrodynamics of processes in bubble-type reactors

SOURCE: Khimicheskaya promyshlennost', no. 7, 1964, 523-527

TOPIC TAGS: hydrodynamics

Abstract: Results of a study of "slow" bubbling characterized by high weight levels of the two-phase layer and by low reduced gas velocities ( $Fr \ll 1$ ) [ $Fr = Froude$ ] are presented. The size of the bubble in the bubble layer must be calculated in advance to determine the gas content under the conditions described. Introduction of gas bubbles into the liquid increases the potential energy of the two-phase layer, which is transferred to the kinetic energy of the descending liquid flow. The dynamic interaction of fluid and gas leads to atomization and coalescence of gas bubbles, as a result of which more sizable bubbles of moderate size are formed in the bubble layer. Orig. art. has: 41 formulas, 5 graphs.

Cord 1/2

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| ACQUISITION NR: AP5015650 |  |            |  |  |  |              |  |  |
| ASSOCIATION: none         |  |            |  |  |  |              |  |  |
| SUBMITTED: 00             |  | ENCL: 00   |  |  |  | SUB CODE: ME |  |  |
| NO REF Sov: 012           |  | OTHER: 006 |  |  |  | JIRS         |  |  |
| Card 272-14               |  |            |  |  |  |              |  |  |

AZBIL', D.S.; MITYCHENKO, L.A.

Calculation of bubbling-type reactor for the liquid-phase oxidation  
of hydrocarbons. Khim. prom. 40 no.12:881-887 D '64.

(MIRA 18:2)

AZBEL', I.A.

Economics, methods, and technological production systems of coal  
cleaning in England. Koks i khim. no.2:55-60 '61. (MI A 14:2)  
(Great Britain—Coal preparation)

ACC NR: AT6033690

SOURCE CODE: UR/3231/66/000/002/0003/0045

AUTHOR: Asboll, I.Ya.; Yanovskaya, T.B.; Keylis-Borok, V.I. (Doctor of physico-mathematical sciences)

ORG: none

TITLE: Method of combined interpretation of hodographs and amplitude curves in studies of the upper mantle

SOURCE: AN SSSR. Institut fiziki Zemli. Vychislitel'naya seismologiya, no. 2, 1966. Mashinnaya interpretatsiya seysmicheskikh voln (Machine interpretation of seismic waves), 3-45

TOPIC TAGS: upper mantle, hodograph, seismic wave, Monte Carlo method

ABSTRACT: The problem of determining the structure of the Earth's upper mantle from the hodographs  $t(\Delta)$  of the first few arrivals lacks a unique solution. This ambiguity may be markedly offset, however, if the amplitude curve  $A(\Delta)$  or  $A^*(\Delta) = \log A(\Delta)$  of direct refracted P waves is also utilized. Travel-time curves which hardly differ in  $t(\Delta)$  may be characterized by different  $A^*(\Delta)$  and analysis of the latter can result in a marked reduction of the set of curves obtained. The following method of solution of the reciprocal problem is proposed: the sought travel-time curve TTC is parametricized, i.e. represented by a specified

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UDC: 550.34-517:681.142.35

ACC NR: AT6033690

function of the parameters. The possible ranges of variation in these parameters, i.e. the region within which the true travel-time curve exists, are indicated, and individual TTC are scanned, on theoretically calculating for each TTC the data known from observations. The discrepancy between the computed and observational data then is calculated. The set of travel-time curves for which this discrepancy is sufficiently small represents the solution of the problem. Thus, the problem reduces to finding the region of the minimum of multivariate function (discrepancy between calculations and experiment) in the space of unknown parameters of TTC. Finally, the set thus identified must be compactly described, i.e. the common features of all the TTC thus found must be pointed out. The determination of the limits of the parameters and the selection of the type of the parameter-dependent function and the optimal method of search for the minimum depend on the conditions of solution of the converse problem in every particular case: on the accuracy of observational data, type of  $A(\Delta)$ , epicentral spacing for which  $t(\Delta)$  and  $A(\Delta)$  are specified, and the nature of the known and unknown parameters. Thus, e.g. if constraints are imposed on both velocities (according to  $t(\Delta)$ ) and velocity gradients (according to  $A(\Delta)$ ), of the methods used to search for the minimum the Monte Carlo method proves to be best. Orig. art. has: 14 figures, 31 formulas, 9 tables.

SUB CODE: 08, ~~12~~ 12/ SUM DATE: none/ ORIG REF: 012/ OTH REF: 003

Card 2/2

AZBEL', I.Ya.

Organising plant-wide creative work teams in the ammonia industry.  
Khim.prom. no.2:110 Mr '54.  
(Chemical industries) (MLRA 7:6)

KRASOTSKIY, A.V.; KOZLOV, L.I.; AZBEL', I.M.; DIMITRIYEV, S.K.; TITEL'MAN,  
I.G.; TIMOVIN, S.V.

Utilizing the heat of compressed gas to heat boiler feed water.  
Suggestion by A.V.Krasotskii and others. Prom.energ. 11 no.4:23-25  
Ap '55. (Waste heat) (Hot-water supply) (MIRA 9:7)

AZREL', I. (Stalinogorsk)

Achievements of Stalinogorsk chemists. MTO no.11:60  
M '59.  
(MIRA 13:4)

1. Predsedatel' soveta pervichnoy organizatsii khimicheskogo  
obshchestva imeni D.I.Mendeleyeva.  
(Stalinogorsk--Chemicals--Manufacture and industry)

AZBEL', I.Ya.

Stalinogorsk Chemical Combine. Khim. v shkole 16 no.4:36-46  
Jl-4g '61. (MIRA 14:8)

1. Nachal'nik tsentral'noy zavodskoy laboratorii Stalinogorskogo  
khimicheskogo kombinata.  
(Stalinogorsk--Chemical industry)

MUKHLENOV, I.P.; POZIN, M.Ye.; TARAT, E.Ya.; AZBEL', I.Ya.; VOL'FKOVICH, S.I.;  
KUSKOV, V.K.

Bibliography. Zhur. prikl. khim. 36 no.12:2788-2792 D'63.  
(MTRA 17:2)

AMBUL', I.Ya.

At a laboratory of the Novomoskovsk Chemical Combine. Zav.  
lab. 30 no. 5s637..638 '64.  
(MIRA 17:5)

1. Nachal'nik laboratorii Novomoskovskogo khimicheskogo  
kombinata.

POZIN, M.Ye.; KOPYLEV, B.A.; AZBELL, I.Ya.; NIKITINA, L.F.; DMITREVSKY, B.A.

Improvement of the complex fertilizer production of the Novomoskovsk  
Chemical Combine. Zhur. prikl. khim. 37 no.10:2089-2093 O '64.

1. Leningradskiy tekhnologicheskiy institut imeni lensoveta,  
Novomoskovskiy khimicheskiy kombinat. (MIRA 17:11)

AZBEL', K.A.

New data on the stratigraphy of Permian sediments in the south-western slopes of the Dzungarian Ala-Tau. Izv. An Kazakh.SSR.  
Ser.geol. no.4:84-88 '61. (MIRA 15:3)  
(Dzungarian Ala-Tau--Geology, Stratigraphic)

AZBEKOV, K.A.; BURDAKAYEV, M.R.

Fernian stratigraphy of the southwestern slopes of the Dzungarian  
Alatau. Vest. AN Kazakh. SSR 21 no.9:46-50 S '65.

(MIRA 18:9)

AZBEL', L.I., TALOLO, P.M., inzh.

The first large-panel house with 36 apartments in Western Siberia.  
Transp. stroi. 10 no.9:21-23 S '60. (MIRA 13:9)

1. Glavnnyy tekhnolog tresta Omsktransstroy (for Azbel').  
(Siberia, Western--Apartment houses)

AZBEL', M.

For collective farms and state farms in the republic. Av.transp.  
40 no.7:49-50 Jl '62. (MIRA 15:8)

1. Bashkirskaya respublikanskoye upravleniye professional'no-  
tekhnicheskogo obrazovaniya.  
(Bashkiria—Automobile drivers)

AZREL', M. G.

Experience with the Organization and Work of the Section for Intestinal Infections at the Military Group Medical Station.

VOYENNO-METSINSKIY ZHURNAL(MILITARY MEDICAL JOURNAL), No 3, 1955. p.61

SINSKAYA, Ye.N.; AZBEL', M.I., red.

[Problem of populations of higher plants] Problema populatsii u vysshikh rastenii. Leningrad, Sel'khozizdat. No.2. [Categories and regularities of the variability in higher plant populations] O kategoriiakh i zakonomernostakh izmenchivosti v populatsiakh vysshikh rastenii. 1963. 122 p.

(MIRA 17:11.)

AZBELEV, R. V.

USSR

537.311.62

8294. Theory of anomalous skin effect in a magnetic field. M. YA. AZBELEV AND M. I. KADANOV. *Dokl. Akad. Nauk SSSR*, 95, No. 1, 41-4 (1953) *In Russian*.

The surface impedance of a metal is calculated for plane electromagnetic waves of frequency  $\omega$  incident normally on it when a magnetic field is applied also normal to the surface. The result is similar to that given by Reuter and Sondheimer in the absence of a magnetic field except that  $\omega$  is replaced by  $\omega \mp \eta$ , where  $\eta$  is the Larmor frequency (more precisely  $\eta = eB/pc$ , if the momentum  $p$  is not related to the velocity by  $p = mv$ ), the impedance being defined as

D. SHOENBERG

|                                     |  |   |   |
|-------------------------------------|--|---|---|
|                                     |  | <p>✓ 2179. Osipov, V. L., and Abovyan, M. Ye., On the hydrodynamic theory of a cavitating fluid (in Russian). <i>Dokladi Akad. Nauk USSR</i>, no. 57, p. 2, 115-118, 1954; <i>Rev. no. 810</i>, p. 2, 115-118, 1954.</p> <p>The motion of a binary fluid is examined, consisting of a liquid mixture substituted by a gas component corresponding to it. The gas component is considered as in the isothermal state. The velocity of acoustic propagation in the binary fluid is examined, and problems analyzed of the flow of such a fluid around a thin airfoil, and of the flow through a two-dimensional diffuser. Authors identify the flow of a binary fluid with the case of a cavitational flow.</p> <p>The substitution of a binary fluid by a homogeneous incompressible fluid is not new; analogous results have already been published [J. Ackermann, "Technische Mechanik und Thermodynamik," I, 1930; G. Heinkel, <i>ZAMP</i> 23, 1943; L. A. Epstein, <i>Dokladi Akad. Nauk USSR</i> 57, no. 3 (1944); <i>Trans. CAII</i>, no. 581, 1945].</p> <p>If such theories are to be applied to ordinary cavitation, allowance must be made for the phenomena of gas segregation from the mixture (cf. Epstein, <i>op.cit.</i>)</p> | <p>31 5<br/>phys<br/>Acad</p> <p>1/10/07<br/>P 2044</p> |
| Physico-Tech Inst.<br>Acad Sci USSR |  | Courtesy of <i>Izdatelstvo: Zbirnik</i><br>Translation, courtesy Ministry of Supply, England  | L. A. Epstein, USSR                                     |

*Arbel, M.*

U S S R

Kaganov, M. L. and Arbel', M. Ya. Conductivity of thin  
metallic films. 2. Teor. Teoret. Fiz. 17, 762-763  
(1954). (Russian)

The authors derive the effective conductivity of thin  
metallic sheets by considering the effect of external electric  
field on the distribution function. For the isotropic case the  
ratio of effective to bulk conductivity, expressed in terms of  
the sheet thickness  $d$  and mean free path of the electron  $\lambda$ ,  
turns out to be  $(3d/4\lambda) \log(1/\lambda)$ .

J. Samoy.

I. F. IZIKO-tekhnicheskij inst.

Nauk UKrainskoy SSR.

(Metallic films - Electric properties) (Electrons)

114-021, M. Y.

USSR.

Contribution to the Theory of the Anomalous Skin Effect in a Magnetic Field. M. Ya. Azbel' and M. J. Kaganov (Dokl. Akad. Nauk SSSR, 1957, 110(1), 41-44). [In Russian]. A solution is given for the case of the reflection of a plane monochromatic wave of frequency,  $\omega$ , from the surface of a metal placed in a static magnetic field,  $H_0$ . The magnetic field is in the surface of the metal, and the electromagnetic wave propagates in the direction  $\parallel$  the magnetic field.

S. K. L.